

WHAT IS CLAIMED IS:

1. An oil-in-water nanoemulsion comprising oil globules with an average size of less than 150nm comprising at least one oil, at least one amphiphilic lipid, and at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block.

2. A nanoemulsion according to claim 1, wherein said at least one oil and said at least one amphiphilic lipid are present in amounts wherein the weight ratio of the amount of said at least one oil to the amount of said at least one amphiphilic lipid ranges from 1:1 to 10:1.

3. A nanoemulsion according to claim 2, wherein said weight ratio ranges from 1.2:1 to 6:1.

4. A nanoemulsion according to claim 1, wherein said oil globules have an average size ranging from 30 nm to 100 nm.

5. A nanoemulsion according to claim 1, wherein said at least one nonionic polymer is chosen from water-soluble nonionic polymers and water-dispersible nonionic polymers.

6. A nanoemulsion according to claim 1, wherein said at least one nonionic polymer comprises at least two hydrophobic blocks.

7. A nanoemulsion according to claim 1, wherein said at least one hydrophobic block is chosen from fatty chains comprising from 6 to 30 carbon atoms, divalent aliphatic groups, divalent cycloaliphatic groups and divalent aromatic groups.

8. A nanoemulsion according to claim 7, wherein said fatty chains comprising from 6 to 30 carbon atoms are chosen from alkyl chains, arylalkyl chains, alkylaryl chains and alkenyl chains.

9. A nanoemulsion according to claim 1, wherein said at least one hydrophilic block is chosen from polyethylene oxides, polysaccharides, polyamides, and polyesters.

10. A nanoemulsion according to claim 9, wherein said polyamides are chosen from polyacrylamides.

11. A nanoemulsion according to claim 1, wherein said at least one hydrophobic block and said at least one hydrophilic block are bonded with at least one linking group chosen from ester, ether, urea, amide and urethane linkers.

12. A nanoemulsion according to claim 1, wherein said at least one hydrophilic block and said at least one hydrophobic block are present in amounts wherein the weight ratio of the amount of said at least one hydrophilic block to the amount of said at least one hydrophobic block ranges from 10:1 to 1000:1.

13. A nanoemulsion according to claim 1, wherein said at least one nonionic polymer is chosen from:

- (1) celluloses modified with at least one group comprising at least one hydrophobic chain;
- (2) hydroxypropylguars modified by at least one group comprising at least one  $C_{10}$ - $C_{30}$  fatty chain;
- (3) polyether-polyurethanes comprising in their chain at least one polyoxyethylenated hydrophilic block and at least one hydrophobic block chosen from aliphatic chains, cycloaliphatic chains, and aromatic chains;

(4) copolymers formed from vinylpyrrolidone and at least one hydrophobic monomer comprising at least one fatty chain;

(5) copolymers formed from at least one C<sub>1</sub>-C<sub>6</sub> alkyl methacrylate and at least one amphiphilic monomer comprising at least one fatty chain and copolymers formed from at least one C<sub>1</sub>-C<sub>6</sub> alkyl acrylate and at least one amphiphilic monomer comprising at least one fatty chain; and

(6) copolymers formed from at least one hydrophilic methacrylate and at least one hydrophobic monomer comprising at least one fatty chain and copolymers formed from at least one hydrophilic acrylate and at least one hydrophobic monomer comprising at least one fatty chain.

14. A nanoemulsion according to claim 13, wherein said polyether-polyurethanes comprise at least two lipophilic hydrocarbon chains comprising from 6 to 30 carbon atoms, separated by a hydrophilic block, wherein said hydrocarbon chains are chosen from pendant chains and chains at the end of a hydrophilic block.

15. A nanoemulsion according to claim 13, wherein said polyether-polyurethanes are multiblock polymers.

16. A nanoemulsion according to claim 13, wherein said polyether-polyurethanes are triblock polymers.

17. A nanoemulsion according to claim 1, wherein said at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block is present in an amount ranging from 0.01% to 10% by weight relative to the total weight of the composition.

18. A nanoemulsion according to claim 17, wherein said at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block is present in an amount ranging from 0.1% to 5% by weight relative to the total weight of the composition.

5 19. A nanoemulsion according to claim 1, wherein said at least one amphiphilic lipid is chosen from nonionic amphiphilic lipids and anionic amphiphilic lipids.

20. A nanoemulsion according to claim 19, wherein said nonionic amphiphilic lipids are chosen from:

1/- silicone surfactants,

10 2/- nonionic amphiphilic lipids that are fluid at a temperature of less than or equal to 45°C chosen from esters formed from (i) at least one polyol chosen from polyethylene glycol comprising from 1 to 60 ethylene oxide units, sorbitan, glycerol comprising from 2 to 30 ethylene oxide units, and polyglycerols comprising from 2 to 15 glycerol units, and (ii) at least one fatty acid comprising at least one alkyl chain chosen from saturated and  
15 unsaturated, linear and branched C<sub>8</sub>-C<sub>22</sub> alkyl chains,

3/- mixed esters derived from (i) at least one fatty acid, at least one carboxylic acid, and glycerol, and mixed esters derived from (ii) at least one fatty alcohol, at least one carboxylic acid, and glycerol, wherein said at least one carboxylic acid is chosen from α-hydroxy acids and succinic acid,

20 4/- fatty acid esters of sugars and fatty alcohol ethers of sugars,

5/- surfactants that are solid at a temperature of less than or equal to 45°C chosen from fatty esters of glycerol, fatty esters of sorbitan, oxyethylenated fatty esters of sorbitan,

ethoxylated fatty ethers, and ethoxylated fatty esters, and

6/- block copolymers of ethylene oxide (A) and of propylene oxide (B).

21. A nanoemulsion according to claim 19, wherein said nonionic amphiphilic lipids are chosen from:

- polyethylene glycol isostearate (8 mol of ethylene oxide),
- diglyceryl isostearate,
- polyglyceryl monolaurate, polyglyceryl monostearate, and polyglyceryl distearate which comprise 10 glycerol units,
- sorbitan oleate, and
- sorbitan isostearate.

22. A nanoemulsion according to claim 19, wherein said anionic amphiphilic lipids are chosen from:

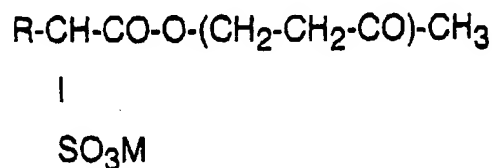
- alkyl ether citrates,
- alkoxylated alkenyl succinates,
- alkoxylated glucose alkenyl succinates, and
- alkoxylated methylglucose alkenyl succinates.

23. A nanoemulsion according to claim 1, wherein said at least one amphiphilic lipid is present in an amount ranging from 0.2% to 15% by weight relative to the total weight of the nanoemulsion.

24. A nanoemulsion according to claim 23, wherein said at least one amphiphilic lipid is present in an amount ranging from 1% to 8% by weight relative to the total weight of the nanoemulsion.

25. A nanoemulsion according to claim 1 further comprising at least one ionic amphiphilic lipid chosen from cationic amphiphilic lipids and anionic amphiphilic lipids chosen from:

- alkaline salts of dicetyl phosphate and of dimyristyl phosphate;
- alkaline salts of cholesteryl sulfate;
- alkaline salts of cholesteryl phosphate;
- lipoamino acids and salts thereof;
- sodium salts of phosphatidic acid;
- phospholipids; and
- alkylsulfonic derivatives of formula:



in which R, which may be identical or different in embodiments wherein more than one of said alkylsulfonic derivative is used, is chosen from C<sub>16</sub>-C<sub>22</sub> alkyl groups, and M is chosen from alkali metals and alkaline-earth metals.

26. A nanoemulsion according to claim 25, wherein said lipoamino acids and salts thereof are chosen from monosodium and disodium acylglutamates.

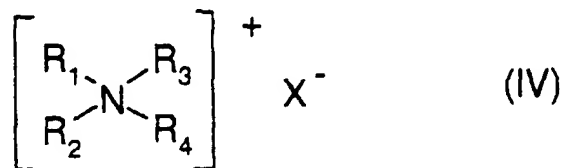
27. A nanoemulsion according to claim 26, wherein said lipoamino acids and salts thereof are chosen from the disodium salt of N-stearoyl-L-glutamic acid.

28. A nanoemulsion according to claim 25, wherein said R is chosen from C<sub>16</sub>H<sub>33</sub> and C<sub>18</sub>H<sub>37</sub> groups.

29. A nanoemulsion according to claim 25, wherein said M is sodium.

30. A nanoemulsion according to claim 25, wherein said cationic amphiphilic lipids are chosen from:

A) quaternary ammonium salts of formula (IV):



in which:

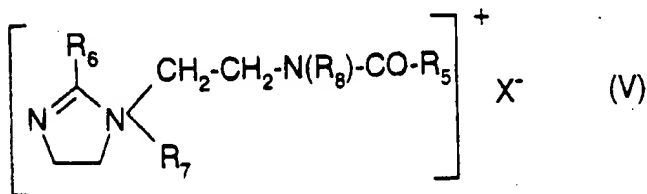
- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub>, which may be identical or different, are each chosen from:

- linear and branched aliphatic groups comprising from 1 to 30 carbon atoms and optionally comprising atoms chosen from hetero and halogen atoms, and

- aromatic groups, and

-  $X^-$  is an anion chosen from halides, phosphates, acetates, lactates,  $(C_2-C_6)$ alkyl sulfates, alkyl-sulfonates, and alkylaryl sulfonates;

B) quaternary ammonium salts of imidazolinium of formula (V):

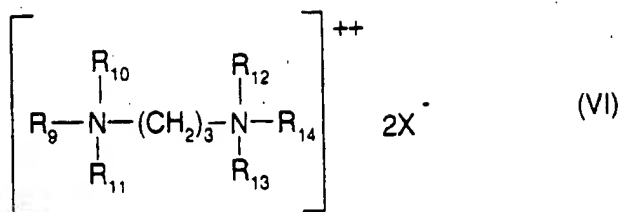


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in which:

- $R_5$  is chosen from alkenyl and alkyl groups comprising from 8 to 30 carbon atoms,
- $R_6$  is chosen from a hydrogen atom,  $C_1-C_4$  alkyl groups, and alkenyl and alkyl groups comprising from 8 to 30 carbon atoms,
- $R_7$  is chosen from  $C_1-C_4$  alkyl groups,
- $R_8$  is chosen from a hydrogen atom and  $C_1-C_4$  alkyl groups, and
- $X^-$  is an anion chosen from halides, phosphates, acetates, lactates, alkyl sulfates, alkyl sulfonates, and alkylaryl sulfonates;

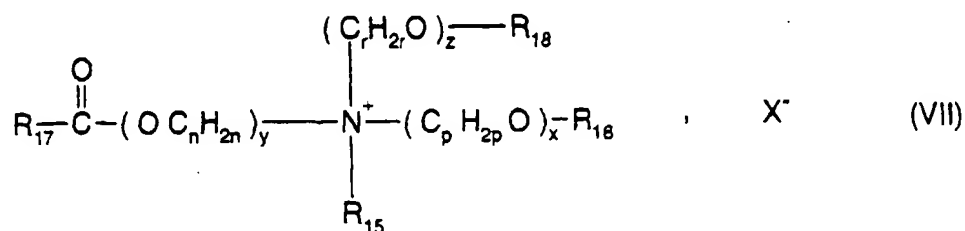
15 C) diquaternary ammonium salts of formula (VI):



in which:

- $R_9$  is chosen from aliphatic groups comprising from 16 to 30 carbon atoms,
  - $R_{10}$ ,  $R_{11}$ ,  $R_{12}$ ,  $R_{13}$  and  $R_{14}$ , which may be identical or different, are each chosen from a hydrogen atom and alkyl groups comprising from 1 to 4 carbon atoms, and
  - $X^-$  is an anion chosen from halides, acetates, phosphates, nitrates and methyl sulfates;
- and

D) quaternary ammonium salts comprising at least one ester function chosen from said quaternary ammonium salts of formula (VII):

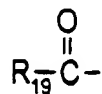


in which:

- R<sub>15</sub> is chosen from C<sub>1</sub>-C<sub>6</sub> alkyl groups, C<sub>1</sub>-C<sub>6</sub> hydroxyalkyl groups and C<sub>1</sub>-C<sub>6</sub> dihydroxyalkyl groups;

- R<sub>16</sub> is chosen from:

5 - acyl groups of the following formula:



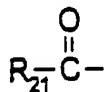
wherein R<sub>19</sub> is defined below,

- linear and branched, saturated and unsaturated, C<sub>1</sub>-C<sub>22</sub> hydrocarbon-based groups, and

- a hydrogen atom;

- R<sub>18</sub> is chosen from:

- acyl groups of the following formula:



wherein R<sub>21</sub> is defined below,

- linear and branched, saturated and unsaturated, C<sub>1</sub>-C<sub>6</sub> hydrocarbon-based groups, and

- a hydrogen atom;

- R<sub>17</sub>, R<sub>19</sub> and R<sub>21</sub>, which may be identical or different, are each chosen from linear and branched, saturated and unsaturated, C<sub>7</sub>-C<sub>21</sub> hydrocarbon-based groups;

- n, p and r, which may be identical or different, are each chosen from integers ranging from 2 to 6;

- y is chosen from integers ranging from 1 to 10;

- x and z, which may be identical or different, are each chosen from integers ranging from 0 to 10;

- X<sup>-</sup> is chosen from simple and complex, organic and inorganic anions; and

- provided that the sum x + y + z is from 1 to 15, and that when x is 0, then R<sub>16</sub> is chosen from linear and branched, saturated and unsaturated, C<sub>1</sub>-C<sub>22</sub> hydrocarbon-based groups, and that when z is 0, then R<sub>18</sub> is chosen from linear and branched, saturated and unsaturated, C<sub>1</sub>-C<sub>6</sub> hydrocarbon-based groups.

31. A nanoemulsion according to claim 30, wherein said aromatic groups are chosen from aryl and alkylaryl groups.

32. A nanoemulsion according to claim 30, wherein said hetero atoms are chosen from oxygen, nitrogen, and sulfur.

33. A nanoemulsion according to claim 30, wherein said aliphatic groups are chosen from alkyl, alkoxy, polyoxy(C<sub>2</sub>-C<sub>6</sub>)alkylene, alkylamide,

(C<sub>12</sub>-C<sub>22</sub>)alkylamido(C<sub>2</sub>-C<sub>6</sub>)alkyl, (C<sub>12</sub>-C<sub>22</sub>)alkylacetate, and hydroxyalkyl groups comprising from 1 to 30 carbon atoms.

34. A nanoemulsion according to claim 30, wherein said alkenyl and alkyl groups comprising from 8 to 30 carbon atoms are chosen from groups derived from tallow fatty acid.

35. A nanoemulsion according to claim 30, wherein said diquatery ammonium salts of formula (VI) comprise propane tallow diammonium dichloride.

36. A nanoemulsion according to claim 30, wherein said R<sub>15</sub> alkyl groups are chosen from linear and branched alkyl groups.

37. A nanoemulsion according to claim 36, wherein said R<sub>15</sub> alkyl groups are chosen from linear alkyl groups.

38. A nanoemulsion according to claim 37, wherein said R<sub>15</sub> alkyl groups are chosen from methyl, ethyl, hydroxyethyl and dihydroxypropyl groups.

39. A nanoemulsion according to claim 38, wherein said R<sub>15</sub> alkyl groups are chosen from methyl and ethyl groups.

40. A nanoemulsion according to claim 30, wherein said sum of x + y + z ranges from 1 to 10.

41. A nanoemulsion according to claim 30, wherein when said R<sub>16</sub> is chosen from linear and branched, saturated and unsaturated, C<sub>1</sub>-C<sub>22</sub> hydrocarbon-based groups, R<sub>16</sub> is chosen from hydrocarbon-based groups comprising from 12 to 22 carbon atoms, and hydrocarbon-based groups comprising from 1 to 3 carbon atoms.

42. A nanoemulsion according to claim 30, wherein when said  $R_{18}$  is chosen from linear and branched, saturated and unsaturated,  $C_1$ - $C_6$  hydrocarbon-based groups,  $R_{18}$  comprises from 1 to 3 carbon atoms.

5 43. A nanoemulsion according to claim 42, wherein said  $R_{18}$  comprises from 1 to 3 carbon atoms.

44. A nanoemulsion according to claim 30, wherein said  $R_{17}$ ,  $R_{19}$  and  $R_{21}$ , which may be identical or different, are each chosen from linear and branched, saturated and unsaturated  $C_{11}$ - $C_{21}$  hydrocarbon-based groups.

10 45. A nanoemulsion according to claim 44, wherein said  $R_{17}$ ,  $R_{19}$  and  $R_{21}$ , which may be identical or different, are each chosen from linear and branched, saturated and unsaturated,  $C_{11}$ - $C_{21}$  alkyl and alkenyl groups.

46. A nanoemulsion according to claim 30, wherein said x and z, which may be identical or different, are each chosen from 0 or 1.

47. A nanoemulsion according to claim 30, wherein said y is equal to 1.

15 48. A nanoemulsion according to claim 30, wherein said n, p and r, which may be identical or different, are each chosen from 2 and 3.

49. A nanoemulsion according to claim 48, wherein said n, p and r, which may be identical or different, are each equal to 2.

20 50. A nanoemulsion according to claim 30, wherein said anion is chosen from halides and alkyl sulfates.

51. A nanoemulsion according to claim 50, wherein said halides are chosen from chloride, bromide, and iodide.

52. A nanoemulsion according to claim 50, wherein said alkyl sulfates are chosen from methyl sulfate.

53. A nanoemulsion according to claim 30, wherein said anion is chosen from methanesulfonate, phosphate, nitrate, and tosylate.

54. A nanoemulsion according to claim 53, wherein said anion is chosen from anions derived from organic acids.

55. A nanoemulsion according to claim 30, wherein said cationic amphiphilic lipids of formula (IV) are chosen from tetraalkyammonium chlorides.

56. A nanoemulsion according to claim 55, wherein said tetraalkyammonium chlorides are chosen from dialkyldimethylammonium chlorides, and alkyltrimethylammonium chlorides, wherein said alkyl portion comprises from 12 to 22 carbon atoms.

57. A nanoemulsion according to claim 30, wherein said cationic amphiphilic lipids of formula (IV) are chosen from behenyltrimethylammonium chloride, distearyltrimethylammonium chloride, cetyltrimethylammonium chloride, benzyldimethylstearyl ammonium chloride and stearamidopropyldimethyl(myristyl acetate) ammonium chloride.

58. A nanoemulsion according to claim 30, wherein said cationic amphiphilic lipids of formula (IV) are chosen from behenyltrimethylammonium salts and stearamidopropyldimethyl(myristyl acetate) ammonium salts.

59. A nanoemulsion according to claim 25, wherein said at least one ionic amphiphilic lipid chosen from cationic amphiphilic lipids and anionic amphiphilic lipids is

present in said nanoemulsion in an amount ranging from 0.01% to 10% by weight relative to the total weight of the nanoemulsion.

60. A nanoemulsion according to claim 59, wherein said at least one ionic amphiphilic lipid chosen from cationic amphiphilic lipids and anionic amphiphilic lipids is present in said nanoemulsion in an amount ranging from 0.2% to 5% by weight relative to the total weight of the nanoemulsion.

61. A nanoemulsion according to claim 1, wherein said at least one oil is chosen from plant oils, animal oils, synthetic oils, mineral oils, halogenated oils, esters of a mineral acid and of an alcohol, liquid carboxylic acid esters and silicones.

62. A nanoemulsion according to claim 1, wherein said at least one oil is present in an amount ranging from 2% to 40% by weight relative to the total weight of the nanoemulsion.

63. A nanoemulsion according to claim 62, wherein said at least one oil is present in an amount ranging from 4% to 30% by weight relative to the total weight of the nanoemulsion.

64. A nanoemulsion according to claim 1 further comprising at least one active agent chosen from water-soluble, water-dispersible, and liposoluble cosmetic active agents and water-soluble, water-dispersible, and liposoluble dermatopharmaceutical active agents.

65. A nanoemulsion according to claim 1, wherein said nanoemulsion has a turbidity ranging from 60 NTU to 600 NTU.

66. A nanoemulsion according to claim 1 further comprising at least one aminosilicone.

67. A nanoemulsion according to claim 66, wherein said at least one aminosilicone is present in an amount ranging from 0.05% to 10% by weight relative to the total weight of the nanoemulsion.

5 68. A nanoemulsion according to claim 67, wherein said at least one aminosilicone is present in an amount ranging from 0.1% to 5% by weight relative to the total weight of the nanoemulsion.

69. A nanoemulsion according to claim 68, wherein said at least one aminosilicone is present in an amount ranging from 0.3% to 3% by weight relative to the total weight of the nanoemulsion.

10 70. A composition for topical use chosen from cosmetic compositions and dermopharmaceutical compositions, wherein said composition for topical use comprises a nanoemulsion comprising oil globules with an average size of less than 150nm comprising at least one oil, at least one amphiphilic lipid, and at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block.

15 71. A composition for caring for a keratin material chosen from body skin, facial skin, mucous membranes, the scalp, the hair, the nails, the eyelashes, and the eyebrows comprising a nanoemulsion comprising oil globules with an average size of less than 150nm comprising at least one oil, at least one amphiphilic lipid, and at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block.

20 72. A composition for washing a keratin material chosen from body skin, facial skin, mucous membranes, the scalp, the hair, the nails, the eyelashes, and the eyebrows comprising a nanoemulsion comprising oil globules with an average size of less than

150nm comprising at least one oil, at least one amphiphilic lipid, and at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block.

73. A cosmetic make up composition for a keratin material chosen from body skin, facial skin, mucous membranes, the scalp, the hair, the nails, the eyelashes, and the eyebrows comprising a nanoemulsion comprising oil globules with an average size of less than 150nm comprising at least one oil, at least one amphiphilic lipid, and at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block.

74. A cosmetic make-up-removing composition for a keratin material chosen from body skin, facial skin, mucous membranes, the scalp, the hair, the nails, the eyelashes, and the eyebrows comprising a nanoemulsion comprising oil globules with an average size of less than 150nm comprising at least one oil, at least one amphiphilic lipid, and at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block.

75. A non-therapeutic care process for a keratin material comprising applying to said keratin material a nanoemulsion comprising oil globules with an average size of less than 150nm and comprising at least one oil, at least one amphiphilic lipid, and at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block.

76. A process according to claim 75, wherein said keratin material is chosen from the skin, the hair, the eyelashes, the eyebrows, the nails, mucous membranes and the scalp.

77. A non-therapeutic care process for a keratin material comprising applying to said keratin material a composition for topical use chosen from cosmetic compositions and dermopharmaceutical compositions, wherein said composition for topical use comprises a nanoemulsion comprising oil globules with an average size of less than 150nm and comprising at least one oil, at least one amphiphilic lipid, and at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block.

78. A process according to claim 77, wherein said keratin material is chosen from the skin, the hair, the eyelashes, the eyebrows, the nails, mucous membranes and the scalp.

79. A process for thickening oil-in-water nanoemulsions comprising including at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block in said nanoemulsions comprising oil globules with an average size of less than 150nm and comprising at least one oil and at least one amphiphilic lipid.

80. An oil-in-water nanoemulsion comprising oil globules with an average size of less than 150nm comprising at least one oily phase, at least one amphiphilic lipid, and at least one nonionic polymer comprising at least one hydrophobic block and at least one hydrophilic block.

81. A nanoemulsion according to claim 80, wherein said at least one oily phase and said at least one amphiphilic lipid are present in amounts wherein the weight ratio of the amount of said at least one oily phase to the amount of said at least one amphiphilic lipid ranges from 1:1 to 10:1.

82. A nanoemulsion according to claim 81, wherein said at least one oily phase and said at least one amphiphilic lipid are present in amounts wherein the weight ratio of the amount of said at least one oily phase to the amount of said at least one amphiphilic lipid ranges from 1.2:1 to 10:1.

5 83. A nanoemulsion according to claim 82, wherein said at least one oily phase and said at least one amphiphilic lipid are present in amounts wherein the weight ratio of the amount of said at least one oily phase to the amount of said at least one amphiphilic lipid ranges from 1.5:1 to 6:1.

84. A nanoemulsion according to claim 83, wherein said at least one oily phase and said at least one amphiphilic lipid are present in amounts wherein the weight ratio of the amount of said at least one oily phase to the amount of said at least one amphiphilic lipid ranges from 2:1 to 5:1.

85. A nanoemulsion according to claim 54, wherein said anions derived from organic acids are chosen from acetate and lactate.